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P6915

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BUREAU OF PLANT INDUSTRY

PLANT IMMIGRANTS.

No. 194. JUNE, 1922.

GENERA REPRESENTED IN THIS NUMBER.

Aeluropus	1759	Limonium	1765
Amygdalus	1767	Lupinus	1765
Cassia	1759	Lycopersicon	1768
Castanea	1767	Manisuris	1765
Chenopodium	1759	Musa	1765
Citrus	1760	Pyracantha	1765
Ehretia	1767	Sabinea	1766
Eranthemum	1760	Solanum	1766
Festuca	1760	Trifolium	1766, 1767
Fragaria	1761	Ulmus	1768
Girardinia	1761	Zea	1767
Gossypium	1761	Zephyranthes	1768
Hibiscus	1761-1764	Ziziphus	1768
Kleinhovia	1764		

Plates:

307. The Tamayo avocado, a new variety from Ecuador - (*Persea americana*).
308. The Chota, a promising new avocado of the Mexican race (*Persea americana*).

Foreign Seed and Plant Introduction.

EXPLANATORY NOTE

This circular is made up principally of notes received from agricultural explorers, foreign collaborators, and correspondents, concerning the more important plants which have been received recently by the Office of Foreign Seed and Plant Introduction. It also contains reports on the behavior of plants which have been introduced in previous years.

Descriptions appearing here are revised and later published in the Inventory of Seeds and Plants Imported,--the permanent record of plant introductions made by this Office.

Plant Immigrants should be considered merely an ANNOUNCEMENT OF THE ARRIVAL OF PLANT MATERIAL. As a rule all material is propagated before being distributed; this may require several years.

The Annual Catalogue of New Plant Introductions describes briefly the plants available for distribution. Applications for seeds or plants listed in Plant Immigrants may be sent at any time, however, and will be filed in the order of their receipt. When material is ready for distribution, these requests will be given first attention; if their number is sufficient to exhaust the available supply of a given species, it will not be included in the Annual Catalogue.

Plant breeders and experimenters who desire plants not available in this country are invited to correspond with this Office which will endeavor to secure the required material through its agricultural explorers, foreign collaborators, or correspondents.

DAVID FAIRCHILD
Agricultural Explorer in Charge,
Office of Foreign Seed and Plant Introduction.

Issued Sept. 5, 1922. Washington, D. C.

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Aeluropus repens (Poaceae), 55029. From Algiers, Algeria. Seeds presented by Dr. L. Trabut, director, Service Botanique. "Found at very salty places in the Sahara." (Trabut.)

A low, much-branched, rigid, perennial grass from the Mediterranean countries. It roots at the nodes, and appears to be partial to sandy places,- even close to salt water. (Adapted from Muschler, Manual Flora of Egypt, vol. 1, p. 129.)

Cassia siamea (Caesalpiniaceae), 55025. **Kassod tree.** From Los Banos, Philippine Islands. Seeds presented by J. E Higgins, College of Agriculture. A medium-sized or sometimes a large tree with gray, nearly smooth bark and papery glabrous leaflets. The small yellow flowers are borne in large pyramidal, terminal panicles. The tree is probably native to Burma and is cultivated throughout India and many tropical countries for its hard heavy wood which is very durable. The heartwood is dark brown to nearly black, in stripes of dark and light; it is used for mallets, walking sticks, for building, and for fuel. (Adapted from Rock, Leguminous Plants of Hawaii, p. 81.)

Chenopodium quinoa (Chenopodiaceae), 55051. From Cuzco, Peru. Seeds presented by Prof. Fortunato L. Herrera. "One of the inhabitants of the highlands of Peru and Bolivia is a species of Chenopodium (*C. quinoa*) and so far as foliage is concerned it is not very unlike our ordinary 'goosefoot.' Its seeds, however, are white or nearly so, and fully three times as large as those of *C. album*. In pre-Columbian times this plant was one of the main foods of the Indians, evidently ranking with the potato and corn in this respect. None of the Old World cereals being known before the discovery it was only natural that the cultivation of this plant should have extended over a considerable area. In addition to Peru and Bolivia it was probably grown in some parts of Argentina and is known with certainty to have been cultivated in Chile; in fact there even appears to have been an Araucanian or Mapuche name for it. Doubtless its cultivation at the present time is less extensive than formerly, due in part to the diminished Indian population and in some measure to an apparent ignorance or indifference on the part of the white population to its real merits as a food. At present it is probably most commonly grown on the Titicaca plateau. It is said to yield abundantly though it does not seem

to have occurred to any one to measure the yield of a given area. In late April and May some of the fields were red with compact panicles, the only part of the plant visible from a short distance. Other fields had a greenish cast, there being two or possibly more varieties. On the Island of Chiloe, southern Chile, the plant grows much taller than any seen about Lake Titicaca and the foliage was also much more abundant, though whether the latter condition was due to the difference in season or to the lower altitude and more abundant rainfall is uncertain. The grain is used by the Indians in the same manner as rice, being put in soups and made into porridge. It appeals to a North American primarily as a breakfast food and should rank with oatmeal and some of the better wheat preparations. It may be cooked and served in a manner similar to oatmeal, but it becomes even more appetizing if spread out in a tray about an inch deep after steaming, and then browned in the oven." (W. F. Wight.)

Citrus sp. (Rutaceae), 55030. From Holguin, Cuba. Seeds presented by Thomas R. Towns. "I have used this shaddock, which is the nonedible white variety, as a stock for twenty years and would be lost without it. For grapefruit it is inclined to gum rather more than the sour orange or rough lemon, but my 10-year-old tangerines, worked on this stock, have 2,500 fruits on some of the trees, and the fruits are fine grained and of good commercial size. The Washington Navel on this stock is also very prolific and bears a full crop every year, and I have had equal success with other round oranges like the King, Valencia, Pineapple, and Lue Gim Gong." (Towns.)

Eranthemum purpureum (Acanthaceae), 55050. From Manila, Philippine Islands. Cuttings presented by P. J. Wester, agricultural adviser, Bureau of Agriculture. "A plant with variegated, mostly purplish foliage, grown on the Moro graves in Lanao. The flowers are whitish and inconspicuous. It could probably be used as a bedding plant as far north as Washington, or possibly New York." (Wester.)

Festuca heterophylla (Poaceae), 55066. **Grass.** From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co. "This European grass is used in mixtures for sterile or sandy soil, especially in mixtures for lawns. The stem blades are flat." (Hitchcock.)

Fragaria vesca semperflorens (Rosaceae), 54996. **Strawberry.** From Edinburgh, Scotland. Seeds presented by Prof. Isaac Bayley Balfour, Royal Botanic Garden. This variety differs from the type (*Fragaria vesca*, the common wood strawberry of Europe) in the greater size of all its parts - the fruit in particular, - and especially in its habit of producing flowers and fruit continuously throughout the summer. In its red color and delicate flavor the fruit is quite similar to that of the type. (Adapted from Robinson, The Vegetable Garden, p. 673.)

Introduced for the use of strawberry breeders.

Girardinia palmata (Urticaceae), 55001. From Sibpur, near Calcutta, India. Seeds presented by Lieut. Col. A. T. Gage, director, Royal Botanic Garden. A stout, erect, tufted plant, 4 to 6 feet in height, growing commonly in the temperate and subtropical regions of the Himalayas, where it ascends to 5,000 feet above the sea. It is generally known as the "Nilghiri nettle," and is of considerable importance in its native country because of the fiber obtained from its stalks. This fiber is very long, white, soft and silky, and is used for making fine fabrics and for mixing with wool. While the plant is described as an annual, it has proved, under cultivation, to be a perennial; the young shoots are cut down twice a year for their fiber. The leaves of this species are used as a vegetable among the hills of the Northwest Provinces. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 3, p. 500.)

Gossypium anomalum (Malvaceae), 55410. **Cotton.** From Asmara, Eritrea. Presented by the director, Eritrea Colonization Service. "This cotton has a short staple, but it is soft and shining like silk. It is used by native textile workers." (Tancredi, Notizie e Studi sulla Colonia Eritrea, p. 110.)

According to one authority this is the only truly wild cotton in Africa; it has been found in Angola and also in the Anglo-Egyptian Sudan. It forms a shrub 5 to 10 feet in height, with rough branches, reddish flowers, and oval capsules about an inch in length. (Adapted from Oliver, Flora of Tropical Africa, vol. 1, p. 211.)

Hibiscus sp. (Malvaceae), 55166-55211. From Honolulu, Hawaii. Cuttings secured by Mrs. J. Rappe Myers,

in Honolulu, and sent in by J.M. Westgate, agronomist in charge, Agricultural Experiment Station. Quoted notes by Mrs. Myers.

The Chinese hibiscus is one of the most popular and useful decorative plants of tropical gardens, and is cosmopolitan in its distribution. Probably in no other region, however, has so extensive a series of choice horticultural forms been brought together as in Hawaii. In most parts of the Tropics only two or three forms are seen,--usually the single scarlet and the double scarlet. In recent years some excellent forms have been distributed by Florida nurserymen,yet it is felt that much more can, and should, be done to popularize the newer, delicately colored varieties, and toward this end the following collection has been secured in Honolulu by Mrs.J.Rappe Myers. They should prove of real value in southern Florida, and in Porto Rico, the Canal Zone, and the American tropics generally.

55166. "(No. 1.) A lavender variety; originally from Japan. Collected in Mrs.George Sherman's garden, March 11, 1922."

55167. "(No. 2.) Single pink, shading white to the center. Collected in Mrs.George Sherman's garden, March 11, 1922."

55168. "(No. 3.) Single orange. Collected in Mrs. George Sherman's garden, March 11, 1922."

55169. "(No. 4.) Single, light pink. Collected in Mrs. George Sherman's garden, March 11, 1922."

55170. "(No. 5.) 'Laurita Sherman.' Collected in Mrs. George Sherman's garden, March 11, 1922."

55171. "(No. 6.) A most beautiful, single, buff variety from Mrs. W. Woon's garden, March 11, 1922."

55172. "(No.7.) Fringed single red. From Haugh's Garden, March 11, 1922."

55173. "(No. 8.) A red-and-pink Fuchsia variety from Mrs. Rosa's garden, March 11, 1922."

55174. "(No. 9.) Buff, single with red center; from Helen Rosa's garden, March 11, 1922."

55175. "(No. 10.) Single and double,light yellow from Country Club grounds, March 11, 1922."

55176. "(No. 11.) Single, buff, light-red center from John Walker's garden, March 11, 1922."

55177. "(No. 12.) 'Agnes Gault' variety from John Walker's garden, March 11, 1922."

55178. "(No. 13.) Double yellow from John Walker's garden, March 11, 1922."

55179. "(No. 14.) 'Mrs. Hassinger,' from John

Walker's garden, March 11, 1922."

55180. "(No. 15.) Double red from Mr. Anderson's garden, March 11, 1922."

55181. "(No. 16.) Bright red; double, from Mr. Anderson's garden, March 11, 1922."

55182. "(No. 17.) Largest, single white from Mr. Anderson's garden, March 11, 1922."

55183. "(No. 18.) Single,reddish mahogany banded in cream. From L.A. Thurston's garden,March 11,1922."

55184. "(No. 19.) Single, rose pink; very fine. From L. A. Thurston's garden, March 11, 1922."

55185. "(No. 20.) Single, corn color, deep-red center. From L.A. Thurston's garden, March 11, 1922."

55186. "(No. 21.) Cerise-pink, single. From L.A. Thurston's garden, March 11, 1922."

55187. "(No. 22.) Single, lavender-buff. From L. A. Thurston's garden, March 11, 1922."

55188. "(No. 23.) Single, orange,crimson center. From L. A. Thurston's garden, March 11, 1922."

55189. "(No. 24.) Double, American beauty shade. From L. A. Thurston's garden, March 11, 1922."

55190. "(No. 25.) Single, flame red. From L. A. Thurston's garden, March 11, 1922."

55191. "(No. 26.) Single, orange-pink. From L.A. Thurston's garden, March 11, 1922."

55192. "(No. 27.) Double,cerise. From L.A. Thurston's garden, March 11, 1922."

55193. "(No. 28.) 'Nora Swanzy Sport,' unnamed, single,copper colored. From Gerrit P.Wilder's garden, March 14, 1922."

55194. "(No. 29.) Single,yellow with red center; not named. From Gerrit P. Wilder's garden, March 14, 1922."

55195. "(No. 30.) Double yellow. Very difficult to grow;no name. From Gerrit P. Wilder's garden,March 14, 1922."

55196. "(No. 31.) 'Lita Wight' or 'Jamaica.' Single yellow. From Gerrit P.Wilder's garden,March 14,1922."

55197. "(No. 32.) 'Queen Kashumanu.' Single,salmon-pink and orange. From Gerrit P. Wilder's garden, March 14, 1922."

55198. "(No. 33.) 'Nora Swanzy.' Single, copper colored. From Gerrit P. Wilder's garden,March 14,1922."

55199. "(No. 34.) 'Auata Focke.' Single,lavender. From Gerrit P. Wilder's garden, March 14, 1922."

55200. "(No. 35.) 'Lillian Nordica.' Single,pink, with white center. From Gerrit P. Wilder's garden, March 14, 1922."

55201. "(No. 36.) 'Lillian Wilder.' Single pink. From Gerrit P. Wilder's garden, March 14, 1922."

"Strong growth, erect, freely branching, light-gray bark, brownish twigs. Leaves ovate, serrate, slightly pubescent, shiny, dark green, 2 to 3¾ inches wide, 3½ to 5¼ inches long, petiole 2 inches. Flower 7 inches wide, delicate crimson-pink with darker veins and crimson eye; column crimson, 3½ inches, peduncle 2¼ inches; bracts 6 to 8, slender, spreading, green. Sometimes self-seeds; crosses freely." (E. V. Wilcox and V. S. Holt, Hawaii Agricultural Experiment Station, Bulletin No. 29, p. 38.)

55202. "(No. 37.) 'Helen Kimball.' Single. From Gerrit P. Wilder's garden, March 14, 1922."

55203. "(No. 38.) 'Wilhelmina Tenny.' Single, orange yellow, from the garden of Gerrit P. Wilder, March 14, 1922."

55204. "(No. 39.) Hybrid; almost double. From Gerrit P. Wilder's garden, March 14, 1922."

55205. "(No. 40.) Hybrid; cross between white and pink. From Gerrit P. Wilder's garden, March 14, 1922."

55206. "(No. 41.) Yellow single. From Gerrit P. Wilder's garden, March 14, 1922."

55207. "(No. 42.) Hybrid. From Gerrit P. Wilder's garden, March 14, 1922."

55208. "(No. 43.) Single, light pink; from Punahou school grounds, March 14, 1922."

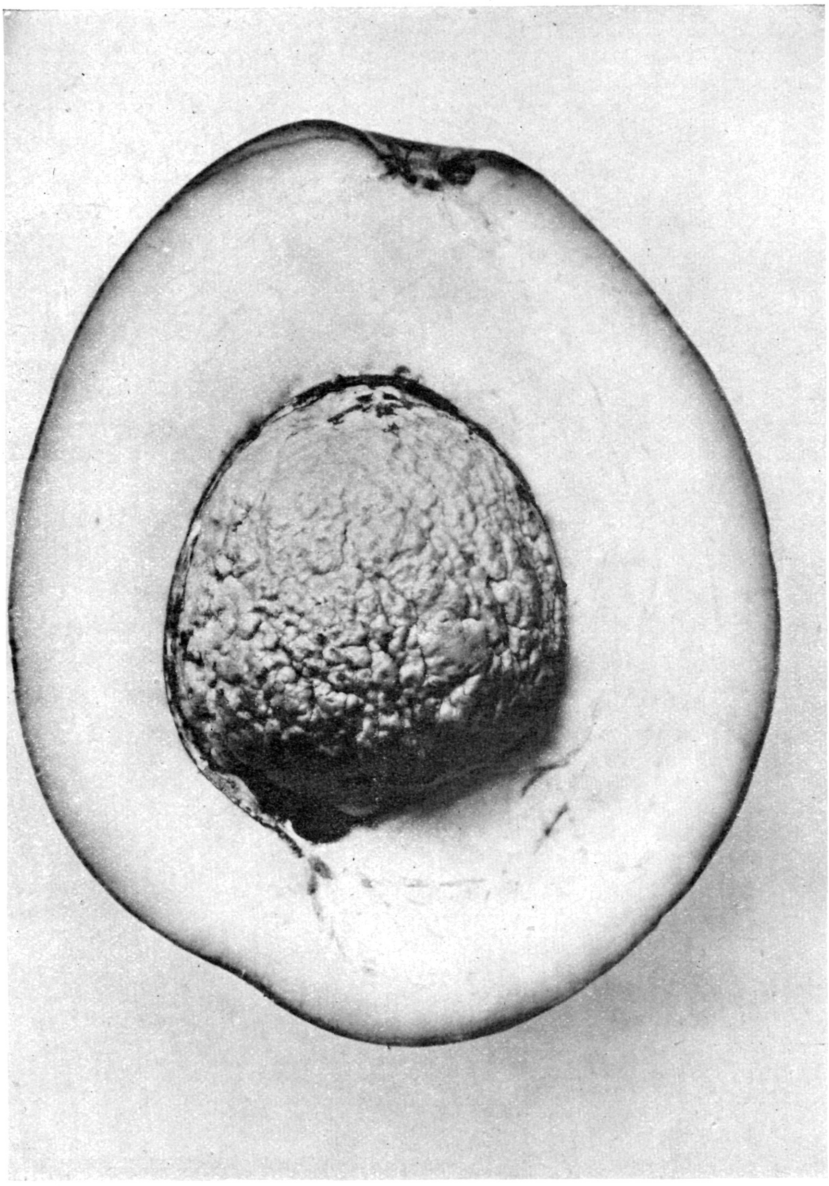
55209. "(No. 44.) Single coral; from Punahou school grounds, March 14, 1922."

55210. "(No. 45.) 'Eleanor Atherton.' Single, light pink; from F. C. Atherton's garden, March 14, 1922."

55211. "(No. 46.) Double cerise from Frank Atherton's garden, March 14, 1922."

Kleinhovia hospita (Sterculiaceae), 54985. From Honolulu, Hawaii. Seeds presented by Dr. H. L. Lyon, in charge, Department of Botany and Forestry, Experiment Station of the Hawaiian Sugar Planters' Association. "Seeds collected in Honolulu." (Lyon.)

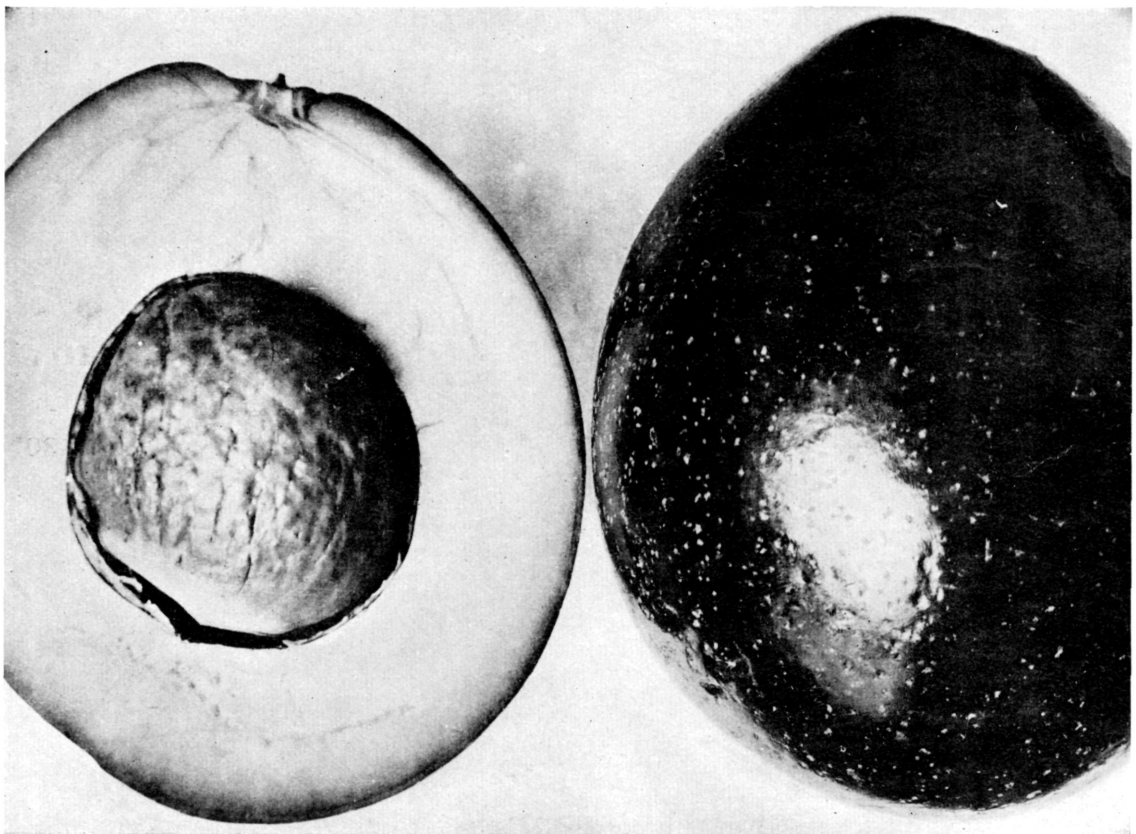
A handsome tree 25 to 45 feet or more in height, native to southern India and the East Indies, with heart-shaped leaves about 4 inches long and wide. The flowering panicles are large and full, and bear small rose-colored flowers; the inflated, papery pods are about an inch long. The tree thrives well in low, moist places, and is quite suitable for planting along avenues, for which purpose it is used considerably in Calcutta. (Adapted from Rock, Ornamental Trees of Hawaii, p. 155.)



THE TAMAYO AVOCADO, A NEW VARIETY FROM ECUADOR.

(*Persea americana* Mill., S. P. I. No. 54270.)

Among the avocados introduced from the Chota Valley of northern Ecuador in 1921, the Tamayo is perhaps the most promising. It is either an unusually large-fruited Mexican or a hybrid between the Mexican and West Indian races. The fruits weigh about 18 ounces and are of excellent quality. The seed is comparatively small and the flesh a rich creamy yellow, smooth, and of delicious flavor. This variety is of much interest to avocado growers in California and Florida, as it promises to be hardier than the Guatemalan sorts now grown in those States. (Photographed, natural size, by Wilson Popenoe, Ibarra, Ecuador, February 19, 1921; P18417FS.)



THE CHOTA, A PROMISING NEW AVOCADO OF THE MEXICAN RACE.

(*Persea americana* Mill., S. P. I. No. 54272.)

Avocado growers in California and Florida are coming more and more to realize the importance of planting the hardiest varieties obtainable, since the damage done to avocado orchards by frost in both States is often serious. The Mexican avocados are the hardiest known, but usually they do not have good commercial characteristics. While searching for desirable sorts in Ecuador, a hitherto unknown avocado region, the Chota Valley was discovered, and from it several very promising varieties of the Mexican race were obtained. The one shown above, which has been named the Chota, is a fruit of good size and attractive appearance, with abundant flesh of very rich flavor. (Photographed, natural size, by Wilson Popenoe, Ibarra, Ecuador, February 19, 1921; P18424FS.)

Limonium brassicaefolium x *imbricatum* (Plumbaginaceae), 55043. From Tangier, Morocco. Seeds presented by M. Jules Goffart, Société d'Horticulture. This is a hybrid between *Limonium brassicaefolium*, which has flowers with yellowish white corollas and smooth purple calyxes, and *L. imbricatum*, which has flowers with yellowish white corollas and rather hairy blue calyxes. Both of these species are shrubby plants about a foot and a half in height, with more or less velvety lobed leaves and winged branches, and both are natives of the Canary Islands.

Lupinus sp. (Fabaceae), 55052. **Lupine.** From Cuzco, Peru. Seeds presented by Prof. Fortunato L. Herrera. "'Tarhui.' The seeds are consumed in large quantities in this locality, and are of great importance as a foodstuff, having been used since the time of the Conquest." (Herrera.)

A half-woody shrub, probably suitable for cultivation in the arid southwestern United States.

Manisuris exaltata (Poaceae), 55068. **Grass.** From Salisbury, Rhodesia. Seeds presented by H. G. Mundy, chief agriculturist and botanist, Department of Agriculture. "'Kokoma grass.' This grass, which is a native of Rhodesia, is an extremely vigorous, free-seeding, leafy annual. It hardly withstands drought as well as Sudan grass, but gives a considerably larger yield of fodder. Owing to the freedom with which the seeds are shed it is inclined to volunteer very freely, and on rich, low-lying, arable land it may become a troublesome weed. The rather harsh, stinging hairs on the lower culms are an objection, but not a very serious one." (Mundy.)

Musa arnoldiana (Musaceae), 55101. From Kisantu, Belgian Kongo. Seeds presented by Père J. Gillet, S. J., Jardin d'Essais de Kisantu. A wild banana from the Belgian Kongo, which grows to a height of 12 to 15 feet, without suckering, and has leaves about 7 feet in length. The inflorescence is short and drooping, and the fruits are nearly 4 inches long. (Adapted from Fawcett, The Banana, p. 278.)

Pyracantha crenulata yunnanensis (Malaceae), 54991. From Paris, France. Seeds purchased from Vilmorin-Andrieux & Co. "A new variety received from Yunnan, China, by Maurice L. Vilmorin; it differs from the type in its

greater vigor, longer spines, and less dentate leaves. The shrub attains a height of 1 to 3 meters (3 to 10 ft.). As compared with the type, the fruits are a brighter coral red and are smaller but much more abundant; they hang on the shrub until January." (Vilmorin-Andrieux & Co., 1920-1922 Catalogue.)

Sabinea carinalis (Fabaceae), 55041. From Dominica, British West Indies. Seeds presented by Joseph Jones, curator, Botanic Gardens. "Mr. Jones' description of the marvelous color of the 'Bois Charibe' and of the rocky hillsides where it grew attracted my attention at once, and I planted a few young seedlings on a dry coral reef in front of my house at Coconut Grove, Florida. They have grown unusually well and during the first week of March, last year, one of them flowered. I have never seen a more beautiful scarlet flower and, as Mr. Jones says, he has seen nothing in the tropics to surpass it as a mass of color. The chances seem good that in the 'Bois Charibe' we have a small tree which is going to add splashes of red color to the landscapes of southern Florida, and one which will thrive on the dry rocky ledges." (David Fairchild.)

Solanum tuberosum (Solanaceae), 54981. **Potato.** From Cambridge, England. Tubers presented by Prof. R. H. Biffen, School of Agriculture. "'Edgecote Purple.' This variety is introduced for the breeding experiments being conducted by J. W. Lesley, at Mills College, Calif. It bears pollen quite freely, and while it is susceptible to the wart disease, it appears to be resistant to the mosaic and leaf-curl diseases. It is also known as the 'Wiltshire' variety." (William Stuart.)

Trifolium repens (Fabaceae), 54979. **White clover.** From Milan, Italy. Seeds purchased from Fratelli Ingegnoli. "'Ladino giant white clover.' A forage plant of the first order, which will grow in most soils capable of being irrigated. It lives for several years if new seeds are sown occasionally. Four cuttings may be obtained, and it makes better hay than other forage plants; it is the best for fattening stock, and also tends to increase the production of milk." (Fratelli Ingegnoli, Catalogue, 1922.)

"The above statement refers to the behavior of this clover in Italy. In this country its use is still in the experimental stage, but very good results have

been obtained already in the irrigated lands of Idaho." (A. J. Pieters.)

Trifolium repens (Fabaceae), 54993 and 54994. **White clover.** From Washington, D.C. Seeds presented by S. Sorensen, agricultural attaché, Danish Legation. Quoted notes by Mr. Sorensen.

"Samples of two of our best strains of white clover, sent to me by a seed dealer, Fr. Drejer, from Aarhus, Denmark."

54993. "No. 348. 'Norso.'"

54994. "No. 660. 'Stryno Hvidklover.'"

Zea mays (Poaceae), 55047 and 55048. **Corn.** From Prague, Czechoslovakia. Seeds presented by Basil Benzin. Quoted notes by Mr. Benzin.

"Native Czechoslovakian varieties of corn, introduced for cultural and breeding experiments.

55047. "'Bankutka.' A flinty variety derived from dent corn by selection, 1917-1921, Levice, Czechoslovakia."

55048. "'Florentinka.' An extra early variety of flint corn, Levice, Czechoslovakia."

Notes on Behavior of Previous Introductions.

Amygdalus persica nectarina (Amygdalaceae), 43144. **Nectarine.** "New Boy." From Avondale, Auckland, New Zealand. "I received this tree one year ago last month, April, 1921, and planted it in sandy loam with no fertilizer, but gave it plenty of water. Today by actual measurement it is 8 feet tall with a spread of 6 feet at the top, and has 39 half-grown fruits." (Ralph M. Ball, Alhambra, Calif., May 30, 1922.)

Castanea mollissima (Fagaceae), 36666. **Chestnut.** From Peking, China. "I have one 3-year-old tree in ordinary garden soil; it is very healthy, and is 9 feet high with a spread of about 9 feet. Last year it bore one large chestnut, and is now in full bloom." (W. S. Pilling, Philadelphia, Pa., June 2, 1922.)

Ehretia microphylla (Boraginaceae), 43760. From Matania el Saff, Egypt. "The leaves of this bush make an excellent drink. It is especially good in the form of cold tea, with just a drop of lime juice. We have used it for several years. I have four large bushes from 10 to 12 feet in height, which are very ornamen-

tal and also provide countless berries for the birds. The seeds do not digest and I find young plants coming up all through my grove. The plant appears to be rather hardy and endured a sharp frost a few years ago." (Frank Gephart, Miami, Fla., May 1, 1922.)

Lycopersicon esculentum (Solanaceae), 52334. **Tomato.** "Harrison's Prolific." From Burringbar, New South Wales. "The packet of seeds which you sent me I planted at once, and am sending you today a sample basket of the tomatoes. They have but little acid, are smooth and of uniform size, and when ripe are a rich purple-red. The plants are drought-resistant. I am delighted with this variety and would like to plant an acre if possible." (J. W. Reid, Thomasville, Ga., June 6, 1922.)

Ulmus densa (Ulmaceae), 32829. **Elm.** From Merv, Turkestan. "Since planting the two trees which you sent me we have had two unusually severe winters. The trees have made a rather remarkable growth; they are now about 25 feet high, and increase about 5 feet in height each season. The foliage is rather dense and of a healthy green, the leaves are very small, and the branches have a drooping habit somewhat like that of the weeping willow. The tree is absolutely free from any diseases or insect pests, and I consider it one of the most valuable introductions made for many years. It grows very rapidly, even more so than the poplars." (W. S. Pilling, Philadelphia, Pa., June 2, 1922.)

Zephyranthes sp. (Amaryllidaceae), 43053. From Colombia. "This may make a very good bedding plant, as it increases very rapidly and stays in bloom for weeks." (Frank W. Campbell, Detroit, Mich., May 16, 1922.)

Ziziphus jujuba (Rhamnaceae), 22694, From Shansi, China, and 37475, from Honan, China. **Jujube.** "These are both doing very well and producing splendid fruit. The trees do not come into leaf until late, so there is never any loss by late frosts. I am sure that the jujube will be planted extensively in Arizona, for it is a fine looking tree and bears well." (Geo. W. P. Hunt, Phoenix, Ariz., May 16, 1922.)

Notes from Agricultural Explorers in the Field.

Mr. J. F. Rock writes from Szemao, Yunnan, China, March 3, 1922:

"I arrived yesterday in Szemao and to my great joy found your very kind letters and also the telegram which was forwarded from Yunnanfu. The trails run at right angles to mountain ranges 6,000 feet high, only to descend again into the valleys and up again 5,000 feet or more. Fifteen miles per day of travel of that sort means a great deal. The trails are so steep that it is impossible to ride and, of course, I am walking anyway a good deal,as I can collect more that way. So far everything has gone well. Dr. Carthew decided not to go at the last moment so I thought I would go alone. As luck would have it a Dr. C. W. Mason, an American missionary in southern Yunnan, was going back to his station at Keng Hung where there are still Tai or Shan people. He was all alone and dreaded the long trip by himself, especially as he had left his wife and six children in America. So we went together. I left him in Chieng Rung or Keng Hung, as it is called on the maps, and went on to Szemao as planned,and here I am, safely arrived at this queer but interesting place. We had no mishap of any kind. Wild animals are about of course, and we* were a bit anxious once or twice, especially at a place half way between Keng Hung and Szemao in a deep gorge of evil repute, on account of tigers. We were forced to stay there, although it is always avoided by the caravans. We built a big fire and fed it with large bamboo, the joints bursting as the air became heated, and so it kept up a cannonade all night. The forests here are magnificent. Oh, I cannot tell you how grand it all is, notwithstanding the dangers of the road; the lovely pine forests,jungles, valleys, and streams. Along the small plains nestled within the hills the wild Yunnan pear called Tang li (Chinese characters) was all in flower and was a gorgeous sight. Near Szemao I found one loaded with fruit from last year, and I collected all and am sending you the same. The Chinese here use this wild pear as a stock on which to graft the cultivated varieties. I have several photos showing this pear in flower. They grow with oaks at an altitude of 5,000 feet and higher,always forming groves. They can stand a good deal of cold and drought for 5 or 6 months, also a dry temperature of 100°F.or more in the shade, during the hot season which is in April. There are regular forests of chestnuts, but unfortunately all

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*I have now a Swiss business man with me from Chiengmai as interpreter, Mr. R. Baer.

the fruits are on the ground and spoiled, the fruiting season being in October. At that time it is impossible to enter on account of the terrible condition of the roads- mud, mud, mud, and swollen rivers which it is impossible to ford. The only thing to do is to get into the country during the dry season and then collect them when the season is on, as I will do. I can get both the northern species and the southern, as these two points are only one month's journey apart. I wish you could have seen me many times sitting in a temple with a crowd of people watching every move I made; often, very often, I think of you and wish you could be here to enjoy it all and to share in the troubles of the road. Often it is perplexing; at one place they want copper coins, at another only silver, and at another again brass cash, 4,500 to the American dollar. At one place the French dollar is at a premium; at the other they will not take them; one place wants rupees, the other only Yunnan dollars, and of course all metal, no paper money."

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
BUREAU OF PLANT INDUSTRY
UNITED STATES DEPARTMENT OF AGRICULTURE

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